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EXAMINER
REIFSNYDER, DAVID A
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1723
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,613

Applicant(s)

WECHSLER ET AL.

Examiner

David A Reifsnnyder

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eb

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-92 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

The applicant states on page 2 of the specification in the section entitled RELATED APPLICATIONS, that: "This application is a continuation of U.S. application Serial No. 10/225,872 filed on August 22, 2002, which is a continuation of U.S. application Serial No. 09/873,625 filed on June 4, 2001, now abandoned, which is a continuation of U.S. application Serial No. 09/604,560 filed on June 27, 2000, now abandoned, which is a continuation of U.S. application Serial No. 08/992,147 filed December 17, 1997, issued on August 5, 2000 as U.S. Pat. No. 6,099,738".

For an application to be a continuation the application must disclose and claim only subject matter claimed in a prior copending application, and must name an inventor or inventors named in that prior copending action. This application discloses and claims only subject matter disclosed in prior copending U.S. Application Serial No. 10/225,872 and names an inventor or inventors named in that prior copending application.

Accordingly, this application is a continuation of U.S. Application Serial No. 10/225,872, filed on August 22, 2003, as stated by applicant.

However, while U.S. Application Serial No. 10/225,872 repeats a substantial portion of U.S. Application Serial No. 09/873,625 and names an inventor or inventors named in that application; U.S. Application Serial No. 10/225,872 claims additional disclosure not presented in U.S. application Serial No. 09/873,625.

Therefore, U.S. Application Serial No. 10/225,872 is not a continuation of U.S. Application Serial No. 09/873,625. U.S. Application Serial No. 10/225,872 is a continuation-in-part of U.S. Application Serial No. 09/873,625.

Also, U.S. Application Serial No. 10/225,872 is now abandoned.

In response to this office action it is requested that the applicant should change the Related Applications Section of his specification to be:

---This application is a continuation of U.S. application Serial No. 10/225,872 filed on August 22, 2002, now abandoned which is a ~~continuation~~ continuation-in-part of U.S. application Serial No. 09/873,625 filed on June 4, 2001, now abandoned, which is a continuation of U.S. application Serial No. 09/604,560 filed on June 27, 2000, now abandoned, which is a continuation of U.S. application Serial No. 08/992,147 filed December 17, 1997, issued on August 5, 2000 as U.S. Pat. No. 6,099,738". U.S. application Serial No. 10/225,872 filed on August 22, 2002 has been abandoned.---

Claim Rejections - 35 USC § 112 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 91 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Concerning claim 91; the recitation on the second to last line of claim 91 of "said fluid" is vague and indefinite as to whether the "said fluid" is the overflow fluid or not. To correct this problem change "said fluid" to ---said clear fluid overflow---.

Specification

The disclosure is objected to because of the following informalities: The only part of the specification where a "recirculating means responsive to said clear fluid overflow from said sedimentation means for recirculating said fluid to said flocculation means" is disclosed is in claim 91. Therefore, in addition to being claimed in claim 91, the "recirculating means responsive to said clear fluid overflow from said sedimentation means for recirculating said fluid to said flocculation means", needs to be discussed somewhere in the body of the specification, or claim 91 needs to be canceled.

Appropriate correction is required, and if claim 91 is not canceled, care should be taken not to add new matter to the body of the specification.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "recirculating means responsive to said clear fluid overflow from said sedimentation means for recirculating said fluid to said flocculation means" must be shown in at least one drawing, or claim 91 should be canceled.

No **new matter** should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing **should not** be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

The objection to the drawings **will not** be held in abeyance.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in

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scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Application claims 2, 32, 71-84 and 86 rejected under 35 U.S.C. 101 as claiming the same invention as that of Patent claims 24, 30, 65, 69-81 and 83, respectively of prior U.S. Patent No. 6,099,738 to Wechsler et al. This is a double patenting rejection.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Application claims 1, 3-31, 33-40, 43-49, 51-70, 85 and 87-89 rejected under the judicially created doctrine of double patenting over Patent claims 3-22, 24-29, 32-38, 42-54, 56-63, 65, 66, 82 and 84-87 of U. S. Patent No. 6,099,738 to Wechsler et al. since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter. Although the conflicting claims are not identical, they are not

patentable distinct from each other because the subject matter being claimed (i.e. a system and method for removing a solute from a fluid) by the instant application involve the same features and steps of the system and method for removing a solute from a fluid, respectively, of U.S. Patent No. 6,099,738.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Concerning application claims 1, 26 and 27; patent claim 24 disclose a method for removing a solute from a fluid comprising the steps of adding coagulant to the fluid to transform a solute from a dissolved state to a non-dissolved particulate state forming colloids and to destabilize the colloidal suspension of the particulates by reducing any charge on the surfaces of the particulates responsible for repulsion between them; collecting the colloids for removal from the fluid including the steps of adding a magnetic seed to the fluid and adding a flocculent to the fluid to form flocs, the magnetic seed inherently accelerating the settling velocity of the flocs, the settling velocity being dependent on the type of magnetic seed and flocculent and at least obviously being greater the 0.5 cm/sec; and separating the flocs by sedimentation after flocculation has been complete to remove the flocs leaving clear fluid overflow and magnetically filtering small flocks from the overflow.

Concerning application claims 3-22, 28-31, 33-40, 44-49, 51-65, 85 and 87-89; claims 3-22, 28-31, 33-40, 44-49, 51-65, 85 and 87-89 correspond to patent claims 3-22, 26-29, 32-36, 87, 37, 38, 42-54, 56-63, 82 and 84-86, respectively.

Concerning application claims 23-25; patent claim 25 discloses the method in which the magnetic seed is magnetite (application claim 23). It is considered by the examiner that magnetite inherently possesses a surface which provides for collection of microbiological contaminants from the fluid (application claim 24), wherein the microbiological contaminants include bacteria, viruses and pathogens such as cryptosporidium parvum and giardia lamblia (application claim 25), as admitted by Wechsler et al.'s disclosure as in col. 9, lines 2-6.

Concerning application claims 43, 69 and 70; patent claim 65 discloses a system for removing a solute from a fluid comprising means for adding a coagulant to the fluid to coagulate solute particles to form colloids; means for collecting the colloids from the liquid and the means for collecting including seeding means for adding magnetic seed to magnetically condition said liquid/fluid and flocculation means for producing flocs of the solute particles and separator means responsive to the flocculation means for separating the flocs from the liquid/fluid; and the separator means including sedimentation means in which flocs settle to the bottom of the sedimentation means and clear fluid overflows said sedimentation means, and the separator means further including a magnetic filtration means for filtering small flocs from the fluid overflow; wherein the magnetic seed inherently accelerates the settling velocity of the flocs, the

settling velocity being dependent on the type of magnetic seed and flocculation means; therefore, the settling velocity is capable of being greater than 0.5 cm/sec.

Concerning application claims 66-68, patent claim 66 discloses the magnetic seed being magnetite (application claim 66). It is considered by the examiner that magnetite inherently possesses a surface which provides for collection of microbiological contaminants from the fluid (application claim 67), wherein the microbiological contaminants include bacteria, viruses and pathogens such as *Cryptosporidium parvum* and *Giardia lamblia* (application claim 68), as admitted by Wechsler et al.'s disclosure as in col. 9, lines 2-6.

Application claims 41 and 42 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over patent claim 24 of U.S. Patent No. 6, 099,738 to Wechsler et al. in view of Weiss et al.

Concerning application claims 41 and 42; U.S. patent claim 24 discloses a method for removing a solute from a fluid comprising the steps of adding coagulant to the fluid to transform a solute from a dissolved state to a non-dissolved particulate state forming colloids and to destabilize the colloidal suspension of the particulates by reducing any charge on the surfaces of the particulates responsible for repulsion between them; collecting the colloids for removal from the fluid including the steps of adding a magnetic seed to the fluid and adding a flocculent to the fluid to form flocs; and separating the flocs by sedimentation after flocculation has been complete to remove the flocs leaving clear fluid overflow and magnetically filtering small flocs from the overflow.

Concerning application claim 41; patent claim 24 fails to disclose the method in which the collecting step further including recirculating the flocs. Weiss et al. teach a method for removing solutes from a fluid similar to that of U.S. Patent No. 6,099,738 to Wechsler et al., wherein the method includes collecting and recirculating the flocs for further treatment, as in fig. 4 and col. 9. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the method of U.S. Patent No. 6, 099,738 to Wechsler et al. by adding the step of collecting and recirculating the flocs for further treatment as taught by Weiss et al. in order to provide an improved method for removing solutes from a fluid. The improved method allowing the regeneration and reuse of adsorbent (i.e. gel particles including magnetite) materials used in forming flocs, thereby lowering costs of replacement of adsorbent materials in the duration of the method. (removal of solutes)

Concerning application claim 42; although U.S. Patent No. 6, 099,738 to Wechsler et al. in view of Weiss et al. do not suggest the floc being recirculated up to 10 times. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that depending on the amount of flocs initially being removed from the fluid and the state of the absorbents used by the process after each recirculating step, as well as the purity of the fluid required by the user of the method that the floc could be recirculated many times, including up to 10 times, to achieve the desired result (i.e. the desired purity of the fluid and the desired amount of flocs, which is to be as less ppm as possible)

Application claim 50 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Patent claim 65 of U.S. Patent No. 6, 099,738 to Wechsler et al. in view of Weiss et al.

Concerning application claim 50; patent claim 65 disclose a system for removing a solute from a fluid comprising means for adding a coagulant to the fluid to coagulate solute particles to form colloids; means for collecting the colloids from the liquid and the means for collecting including seeding means for adding magnetic seed to magnetically condition said liquid/fluid and flocculation means for producing flocs of the solute particles and separator means responsive to the flocculation means for separating the flocs from the liquid/fluid; and the separator means including sedimentation means in which flocs settle to the bottom of the sedimentation means and clear fluid overflows said sedimentation means, and the separator means further including a magnetic filtration means for filtering small flocs from the fluid overflow.

Concerning application claim 50; patent claim 65 fail to disclose the system wherein the separator means includes a recalculation means for recirculating the flocs to the means for collecting. Weiss et al. teach a system for removing solutes from a fluid similar to that of U.S. Patent No. 6, 099,738 to Wechsler et al., wherein the system includes a means for collecting and recirculating the flocs (which is in the form of an underflow of the sedimentation tank), as in fig. 4 and col. 9. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of U.S. Patent No. 6, 099,738 to Wechsler et al. by adding the means for collecting and recirculating the flocs as taught by Weiss et al. in

order to provide an improved system for removing solutes from a fluid. The improved system allows for regeneration and reuse of adsorbent (i.e. gel particles including magnetite) materials used in forming flocs, thereby lowering costs of replacement of adsorbent materials. (removal of solutes)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 7, 11, 15, 19, 23-26, 28-30, 33-38, 41, 43-45, 50-52, 58, 59, 66-70, 85, 87, 89, 90 and 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiss et al.

Concerning claims 1, 3, 4, 7, 11, 15, 19, 23-26, 28-30, 33-38, 41, 43-45, 50-52, 58, 59, 66-70, 85, 87, 89 and 90 and 92 ; Weiss et al. discloses a system and method for removing solutes from a fluid (e.g. waste water) comprising a coagulant and nucleation adding means which adds a nucleation agent and coagulant (e.g. alum, clay, ferric chloride, lime etc.; col. 3, lines 24-40, col. 4, lines 1-13 and col. 6, lines 12-15) to the fluid to transform the solute from a dissolved state to a non-dissolved particulate state forming colloids and to destabilize the colloidal suspension of the particulates by reducing any charge on the surfaces of the particulates responsible for repulsion between them; a collecting means which collects the colloids for removal

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from the fluid, the collecting means including a seeding means which adds a magnetic seed (e.g. magnetite) to the fluid and a flocculation means which adds a flocculent (e.g. anion, cationic, polymeric; cols. 5 and 6) to the fluid to form flocs, the magnetic seed inherently accelerating the settling velocity of the flocs; a separator means which separates the flocs by sedimentation after flocculation has been complete and removes the flocs leaving clear fluid overflow, the separator means including a magnetic filter means for magnetically filtering small flocks from the overflow, a floc recirculating means which recirculates the flocs and a magnetic seed recirculating and regenerating means which recirculates and regenerates the magnetic seed, the regeneration of the magnetic seed including washing the seed in an sodium hydroxide solution.

Furthermore, a sodium hydroxide solution is mostly water.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 27 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Weiss et al.

Concerning claim 27; Weiss et al. fails to disclose that the settling velocity is greater than 0.5 cm/sec. It is considered that it would have been inherent or at least obvious to one having ordinary skill in the art at the time of the invention that the settling velocity is greater than 0.5 cm/sec.

Claims 5, 6, 8-10, 12-14 and 16-18, 20-22, 31, 39, 40, 42, 46-49, 53-57, 60-65, 88 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al.

Concerning claims 5 and 48; Weiss et al. fails to disclose that the regeneration of the magnetic seed includes demagnetization. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that to release

the regenerated magnetic seed that you would demagnetize so that the seed doesn't stick together and can be reused.

Concerning claim 6; Weiss et al. fails to disclose the instantly claimed magnetic field in the range of 0.1 Tesla to 1.0 Tesla at 400 Hertz for the demagnetization of the magnetic seed. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to use any magnetic field that works. Furthermore, the instantly claimed magnetic field in the range of 0.1 Tesla to 1.0 Tesla at 400 Hertz is a wide range and also a range that conventional electromagnets can obtain.

Concerning claims 8 and 49; Weiss et al. while Weiss et al. discloses washing the magnetic seed, Weiss et al. fails to disclose washing the magnetic seed with acid. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have washed the magnetic seed with acid, since acids are often used to wash particles (i.e. seed).

Concerning claims 9, 10, 46 and 47; Weiss et al. fails to disclose drying the magnetic seed in a microwave. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have dried the magnetic seed in a microwave before reusing the magnetic seed.

Concerning claims 12 and 13; Weiss et al. fails to disclose the instantly claimed secondary magnetic field having a magnetic flux density of 0.1 to 2 Tesla and a magnetic field gradient of 1 to 1000 Tesla/meter. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have

made the secondary magnetic field have any magnetic flux density and gradient that works. Furthermore, the instantly claimed magnetic flux density of 0.1 to 1000 Tesla and magnetic field gradient of 1 to 1000 Tesla/meter is a wide range and also a range that conventional permanent magnets and/or electromagnets can obtain.

Concerning claims 14; Weiss et al. fails to disclose applying a secondary magnetic field parallel to the fluid flow. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have applied the secondary magnetic field parallel to the fluid flow to better remove the magnetic seed from the flocs.

Concerning claims 16-18 and 57; Weiss et al. fails to disclose shearing and agitating said flocs. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have sheared and agitated the flocs to make collecting the flocs easier to do.

Concerning claims 20 and 21; Weiss et al. fails to disclose the instantly claimed primary magnetic field having a magnetic flux density of 0.1 to 6 Tesla and a magnetic field gradient of 1 to 2000 Tesla/meter. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have made the primary magnetic field have any magnetic flux density and gradient that works. Furthermore, the instantly claimed magnetic flux density of 0.1 to 6 Tesla and magnetic field gradient of 1 to 2000 Tesla/meter is a wide range, and also a range that conventional permanent magnets and/or electromagnets can obtain.

Concerning claims 22; Weiss et al. fails to disclose applying the primary magnetic field parallel to the fluid flow. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have applied the primary magnetic field parallel to the fluid flow to better magnetically filter the small flocs from the overflow.

Concerning claim 31; Weiss et al. fails to disclose that the volume of alum is as a 48.6 % solution and fed in the system at a rate of 10 to 100 ppm. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have used any desired volume of alum and any desired feed rate.

Concerning claim 39; Weiss et al. while Weiss et al. disclose a clay nucleation agent, Weiss et al. fails to disclose that the clay is bentonite. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that Weiss et al.'s clay be bentonite since bentonite is a common type of clay.

Concerning claims 40 and 88; Weiss et al. fails to disclose that his solute is phosphate. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that Weiss et al.'s solute be phosphate since phosphate is a common waste water contaminant.

Concerning claim 42; Weiss et al. while Weiss et al. discloses recirculating his floc, Weiss et al. fails to disclose that the floc can be recirculated up to 10 times. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention that depending on the amount of flocs initially being removed from the fluid and the state of the absorbents used by the process after each recirculating

step, as well as the purity of the fluid required by the user of the method that the floc could be recirculated many times, including up to 10 times, to achieve the desired result (i.e. the desired purity of the fluid and the desired amount of flocs, which is to be as less ppm as possible)

Concerning claims 53-56; Weiss et al. fails to disclose what type of magnetic separator his secondary magnetic separator is. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention for Weiss et al. to have used any conventional type of magnetic separator for his secondary magnetic separator. For example, a high gradient magnetic separator, a cyclic high gradient magnetic separator, a wet-drum type magnetic separator or a magnetic separator comprising a filamentary matrix, as claimed in claims 53-56, respectively.

Concerning claims 60-63; Weiss et al. fails to disclose what type of magnetic separator his primary magnetic separator is. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention for Weiss et al. to have used any conventional type of magnetic separator for his primary magnetic separator. For example, a high gradient magnetic separator, a cyclic high gradient magnetic separator, a wet-drum type magnetic separator or a magnetic separator comprising a filamentary matrix, as claimed in claims 60-63, respectively.

Concerning claims 64 and 65; Weiss et al. fails to disclose the instantly claimed primary magnetic field having a magnetic flux density of at least 0.1 and a magnetic field gradient of at least 1 Tesla/meter. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have made the

primary magnetic field have any magnetic flux density and gradient that works. Furthermore, the instantly claimed magnetic flux density at least 0.1 Tesla and magnetic field gradient of at least 1 Tesla/meter is a range that conventional permanent magnets and/or electromagnets can obtain.

Concerning claim 91; while Weiss et al discloses recirculating means; Weiss et al. fails to disclose a recirculating means responsive to said clear fluid overflow from said sedimentation means for recirculating said fluid to said flocculation means. it is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have recirculated the clean fluid (i.e. water) overflow to the flocculation means because a lot of flocculants are solids that need to be mixed with water. Therefore, recirculating the clear fluid (i.e. water) overflow water would conserve water by lowering the use of additional clean water in the flocculation means.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Priestley et al. and Slusarczuk et al. who both discloses systems and processes for the separation of suspended solids in waste water comprising the use of flocculants and magnetic particles in settling tanks.

Sasaki who discloses a system and process the separation of suspended solids in waste water comprising the use of magnetic particles in a settling tank.


Carnes et al. who discloses a process for increasing the sedimentation rate of heterogeneous colloidal suspension systems comprising the step of subjecting the system to an electromagnetic field in the radio frequency range.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Reifsnyder whose telephone number is (571) 271-1145. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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